



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,462	12/17/2001	Aravind Padmanabhan	H0002475-02	6183
128	7590	08/03/2005	EXAMINER	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			CHERRY, STEPHEN J	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/024,462	PADMANABHAN ET AL. <i>PM</i>	
	Examiner	Art Unit	
	Stephen J. Cherry	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 November 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4-5-2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

In view the Information Disclosure Statement filed 4-5-2005, the indication of allowable subject matter and the examiners amendment of 12-31-2005 is withdrawn. The claims examined in this office action are the claims presented on 10-3-2003. It is noted that the examiners amendment of 12-31-2005 is not present in the application; thus, if applicant desires for prosecution of the application to proceed based on the claim language of the examines amendment, applicant should amend the claims to include such language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-14, 16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,490,530 to Wyatt in view of "Sensing for Danger" by Hills.

The claims describe, as disclosed by Wyatt ('530):

1. A network for detecting biological agents, the network comprising:

a plurality of sensors for detecting agents in an area with a probability of accuracy ('530, fig. 4, 18);

a controller communicatively coupled to the sensors for receiving information from the sensors ('530, 19, and col. 13, line 3).

2. The network of claim 1 wherein the sensors are selected from the group consisting of trigger sensors ('530, col. 14, line 10, and line 48, detection by a sensor triggers increased sampling by other sensors), Lidar, mass spectrometer, antibody, and PCR detectors.

3. The network of claim 1 wherein the controller comprises multiple controllers ('530, figure 4, 6).

4. The network of claim 3 wherein the controllers comprise multiple integrating controllers coupled to different sets of sensors, and an operating controller coupled to the integrating controllers ('530, col. 13, line 36).

5. The network of claim 4 wherein the number of integrating controllers is variable to cover and protect areas of diverse size ('530, col. 13, lines 46-60).

6. The network of claim 4 wherein a set of sensors coupled to one integrating controller at least partially overlaps a set of sensors coupled to another integrating controller to provide verification or fault tolerance ('530, figure 3 shows sensors covering an assigned area, and at col. 13, line 62, using a group of sensors to track a threat is disclosed).

7. The network of claim 1 wherein the sensors are selected from the group consisting of early warning, broadband and specific sensors ('530, col. 8, lines 29-45 describe sensors capable of detecting a broad range of aerosols).

8. The network of claim 1 wherein information from sensors not targeted for a specific threat is used to help identify such specific threat ('530, col. 113, line 61 discloses using meteorological data to assist in analysis of aerosol data).

10. A network for detecting biological agents, the network comprising:
a plurality of sensors for detecting agents in multiple areas with a probability of accuracy ('530, fig. 3);
a plurality of integrating controllers communicatively coupled to selected groups of sensors protecting each area for receiving information from the sensors to determine whether such agents are a threat to a respective area with a greater probability than any individual sensor ('530, 6).

13. A network for detecting biological agents in a building, the network comprising: a plurality of different types of sensors for detecting biological agents in the building ('530, col. 13, line 23 and 61), wherein the sensors are placed at different locations within the building based on the characteristics of the sensor ('530, col. 13, line 26); a controller

communicatively coupled to the sensors for receiving information from the sensors for the space ('530, fig. 4, 19).

14. The network of claim 13 wherein at least one sensor is monitoring threats external to the building ('530, fig. 3).

16. A method of detecting chemical and biological agent threats using a diverse network of sensors, the method comprising:

collecting information from sensors regarding the conditional probability of detection of biological agents ('530, fig. 4, and col. 14, line 49);

19. The method of claim 16 wherein the sensors are selected from the group consisting of early warning, broadband and specific sensors ('530, col. 8, lines 29-45 describe sensors capable of detecting a broad range of aerosols).

20. The method of claim 16 wherein information from sensors not targeted for a specific threat is used to help identify such specific threat ('530, col. 113, line 61 discloses using meteorological data to assist in analysis of aerosol data).

21. A method of designing a network for detecting threats from biological and chemical agents, the method comprising:

determining a probability of detection for multiple sensors for a given threat ('530, fig. 4, calculations performed by 5 and 6, col. 11, line 66 to col. 12, line 39).

Wyatt does not disclose a system that uses a Bayesian network as an evidence accrual system that integrates sensor data to perform data fusion, producing an output with higher probability of detection.

Hills discloses a system that uses a Bayesian network as an evidence accrual system and algorithm for groups of sensors that integrates sensor data to perform data fusion, producing an output with higher probability of detection (Hill, pages 12-17).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system of Wyatt with the Bayesian analysis of system data disclosed by Hill to allow greater probability of accuracy in the presence of noisy signals (see Hill page 14).

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,490,530 to Wyatt in view of "Sensing for Danger" by Hills as applied to claims 13 and 16 above.

Claim 15 further discloses features that are not explicitly disclosed by Wyatt, which Wyatt describes as prior art:

15. The network of claim 14 wherein the at least one sensors comprises a Lidar ('530, col. 2, line 24).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Lidar sensors with the invention of Wyatt to allow the

detection of the presence of aerosols from a distance to allow a deduction of the extinction coefficients of aerosol particles ('530, col. 2, line 59).

Claim 17 further discloses features that are not explicitly disclosed by Wyatt, which Wyatt describes as prior art:

17. The method of claim 16 wherein the sensors are selected from the group consisting of FLAPS, Lidar ('530, col. 2, line 24) , mass spectrometer, antibody, and PCR detectors.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Lidar sensors with the invention of Wyatt to allow the detection of the presence of aerosols from a distance to allow a deduction of the extinction coefficients of aerosol particles ('530, col. 2, line 59).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,490,530 to Wyatt in view of "Sensing for Danger" by Hills as applied to claim 21 above, and further in view of "The Automatic Management of Multi-Sensor Systems" by Penny.

Wyatt does not disclose creating different combinations of sensors to select an optimal combination of sensors based on the performance of the different combinations.

Penny discloses creating different combinations of sensors to select an optimal combination of sensors based on the performance of the different combinations (see Penny, section 4).

Art Unit: 2863

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system suggested by Wyatt in vies of Hills with the optimal selection of sensors disclosed by Penny to increase the probability of detection of the sensor system (see Penny, section 4).

Response to Arguments

Applicant's arguments with respect to claims 1-23, filed 10-3-2003 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Cherry whose telephone number is (571) 272-2272. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2863

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SJC



John Barlow
Supervisory Patent Examiner
Technology Center 2800